

REMARKS

Claims 1 is amended to recite a liquid absorbing capacity of 3 to 2600 ml/m². Support is found, for example at page 5, lines 23-24. No new matter is presented.

I. Response to Claim Rejection - 35 U.S.C. § 102/103

Claims 1-6, 8-11, and 18-21 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as allegedly being obvious over WO 00/22033. Iwasa et al (US 6,911,253) is relied on as an English language equivalent form of WO 00/22033.

Applicants traverse the rejection.

Claim 1 is amended herein to recite a liquid absorbing capacity of 3 to 2600 ml/m².

WO '033 does not distinctly disclose, teach or suggest all elements of the claimed invention. Specifically, WO '033 does not disclose, teach or suggest the "liquid absorbing capacity of 3 to 2600 ml/m² or more "or the "screw shear rate" recited in present claim 1. However, the Examiner states that since the composition, structure, etc., are identical between WO '033 and the present invention, the characteristics obtained therefrom are also identical and, accordingly, it is considered that the characteristics of the present invention not disclosed therein are implicitly (inherently) disclosed by WO '033. Further, the Examiner also states that the definition of the screw shear rate in claim 1 relates to a process and the definition of the process has no significance for judging the patentability in the invention of the product claim 1.

Applicants disagree. The present invention is a product, which is obtained by a specific process and differs in microscopic structure and physical properties and characteristics which are obtained as a result of the present method, which satisfies the recited screw shear rate. Thus, the

present invention as recited is different from WO '033 and is not anticipated nor rendered obvious by WO '033. This is further supported by the attached Declaration under 37 C.F.R. § 1.132 of Mr. Yasuo Iwasa which shows that the product of WO '033 does not meet the recited liquid absorbing capacity of 3 to 2600 ml/m².

While the present invention uses a resin composition (thermoplastic resin and hydrophilic thermoplastic resin) similar to that described in WO '033, it is an important point of the present invention that a thermoplastic resin and a hydrophilic thermoplastic resin, which are incompatible, can be mixed uniformly by kneading at a specific high shear rate, that is, at a screw shear rate of 300 sec⁻¹ or higher, and it is a most excellent result thereof that an excellent "liquid absorbing capacity" can be attained as a result. Thus, the present invention provides unexpectedly superior results over the prior art.

The increase in the liquid absorbing capacity in the present invention has been attained by the improvement of the dispersibility of the hydrophilic thermoplastic resin in the thermoplastic resin by kneading them at a specific high screw shear rate, and by finely dispersing the same, the specific surface area of the hydrophilic thermoplastic resin in the thermoplastic resin composition increases so that the increasing of liquid absorbing capacity is attained.

That is, the thermoplastic resin and the hydrophilic thermoplastic resin in the present invention has a finer sea-island structure than that described in WO '033. This property is improved as can be seen by the increase of the liquid absorbing capacity.

This fact is apparent also in view of the description in the present specification at page 5, lines 6 to 8, which states: "if the screw shear rate is lower than 300 sec⁻¹, the hydrophilic thermoplastic resin is not sufficiently dispersed, resulting in poor liquid absorptivity".

While it is described in Example 1 of WO '033 that the resin composition is melt-kneaded by a biaxial kneader (US 6,911,253 B2, 12th column, lines 55 to 56), WO '033 does not disclose, teach or suggest the claimed screw shear rate of 300 sec^{-1} at which the composition was kneaded in an intermeshing twin-screw extruder. WO '033 is silent as to the high screw shear rate employed in the present invention and therefore WO '033 does not recognize the advantageous effects of improving the dispersibility of the hydrophilic thermoplastic resin by kneading at a high screw shear rate, thereby increasing the liquid absorbing capacity. The attached Declaration of Mr. Yasuo Iwasa, shows that the product of WO '033 does not meet the claimed liquid absorbing capacity and therefore, it can be determined that the resin composition of Example 1 of WO '033 was not kneaded at a sufficient shear rate to obtain the improved liquid absorbing capacity as in the present invention.

The present inventors have found that a high liquid absorbing capacity is obtained by providing the condition of melt-kneading the resin composition at a high shear rate to attain the present invention. The present invention, provides a remarkable excellent effect over WO '033 with respect to the above-mentioned feature of the screw shear rate.

As has been described above, although the present invention appears to use the resin composition similar to that of WO '033, it can be said that the dispersion of the hydrophilic thermoplastic resin is improved and the present invention is materially different from WO '033 also like the resin composition from a microscopic point of view.

Then, since the invention includes production means of controlling the specific condition, that is, at a screw shear rate of 300 sec^{-1} or higher using a specific instrument, as a constituent element for attaining a practical improvement in the dispersed state of the resin ingredient, the present invention is different from WO '033, and provides a remarkable effect such as liquid

absorptivity due to the difference thereof. Thus, the present invention as recited in present claim 1 and the claims dependent therefrom are not anticipated by, nor rendered obvious over WO '033.

Claim 5 is additionally patentable over WO '033 because WO '033 does not disclose, teach or suggest the number of pores on the surface as recited in claim 5.

Accordingly, Applicants respectfully request withdrawal of the rejection based on WO '033.

II. Response to Obviousness Double Patenting Rejections

Claims 1-6, 8-11, and 13-21 are rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,911,253 (hereinafter "Iwasa II").

Claims 1-6, 8-11 and 13-21 are rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent No. US 6,811,837 (hereafter "Iwasa I") in view of US 6,911,253 (Iwasa II).

Claims 1-6, 8-11, and 13-21 are rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-23 of U.S. Patent No. 6,984,423.

Applicants traverse the rejections.

As noted above, the present invention provides unexpectedly superior results of improved liquid absorbing capacity as a result of the feature of the screw shear rate employed for kneading the composition. This feature is not taught or suggested by any of the identified claims of the cited patents. Thus, the present invention is not an obvious variant of the subject matter of the identified claims of the cited patents.

Accordingly, Applicants respectfully request withdrawal of the obviousness-type double patenting rejections.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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